



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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BIN C15700
Seattle, WA 98115-0070

Refer to:
2002/00029

July 16, 2002

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation for the Bethel Creek (Fish 4) Passage Improvement
Project, Coos County, Oregon.

Dear Mr. Patron:

Enclosed is the biological opinion (Opinion) prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered species Act (ESA) on the effects of the proposed Bethel Creek (Fish 4) Passage Improvement Project in Coos County, Oregon. In this Opinion, NOAA Fisheries concluded that the proposed action is not likely to jeopardize the continued existence of ESA-listed Oregon Coast coho salmon. As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR part 600.

If you have any questions regarding this consultation, please contact Jim Collins of my staff in the Oregon Habitat Branch at 541.957.3389.

Sincerely,

for 

Robert Lohn
Regional Administrator

cc: Rose Owens - ODOT
Max Mizejewski - ODOT
Julie Bunnell - ODOT
John Raasch - ODOT
Chris Hunter - ODOT



Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

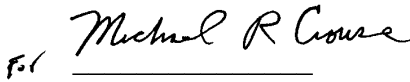
BIOLOGICAL OPINION

Bethel Creek Bridge (Fish 4) Fish Passage Improvement Project
Coos County, Oregon.

Agency: Federal Highway Administration

Consultation
Conducted By: NOAA Fisheries,
Northwest Region

Date Issued: July 16, 2002

Issued By: 
D. Robert Lohn
Regional Administrator

Refer to: 2002/00029

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1. ENDANGERED SPECIES ACT

1.1 Background

On November 7, 2001, the National Marine Fisheries Service (NOAA Fisheries) received a biological assessment (BA) and a request from the Federal Highway Administration (FHWA) for essential fish habitat (EFH) consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for the Bethel Creek (Fish 4) Fish Passage Improvement Project. On January 22, 2002, NOAA Fisheries received a letter from the FHWA requesting Endangered Species Act (ESA) section 7 formal consultation for the Bethel Creek (Fish 4) Passage Improvement Project. This project will replace a double-barreled corrugated metal pipe (CMP) culvert under Highway 101 at milepost 284.7 with a single-span concrete bridge. The proposed project site is located about 10 miles south of Bandon, in Coos County, Oregon. The project applicant is the Oregon Department of Transportation (ODOT). This biological opinion (Opinion) is based on the information presented in the BA and discussions with the applicant.

The FHWA has determined that Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) may occur within the project area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), critical habitat was designated on February 16, 2000 (65 FR 7764), and protective regulations were issued under section 4(d) of the Endangered Species Act (ESA) on July 10, 2000 (65 FR 42422). The critical habitat designation for OC coho salmon was vacated on May 7, 2002, through a U. S. District Court Consent Decree, and will not be discussed in this Opinion. The FHWA, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect OC coho salmon.

This Opinion is based on the information presented in the BA and developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the actions to remove the existing structure and construct a new structure are likely to jeopardize the continued existence of the OC coho salmon. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Actions

1.2.1 Project Purpose

The main impetus for this project is to improve fish passage in Bethel Creek through ODOT's fish passage improvement program for facilities on the state highway system. This project will replace a double-barreled corrugated metal pipe (CMP) culvert under Highway 101 with a single span concrete bridge. The existing culverts have drops at the outlet of 3.4 feet, and 1.6 feet for the north and south pipes, respectively, and are an upstream passage barrier to juvenile fish, and a passage impediment for adult salmonids. These culverts are a high priority for the Oregon Department of Fish and Wildlife's (ODFW) hierarchy for passage improvement.

1.2.2 Construction

The removal of the existing culverts and construction of the new bridge will occur in three stages. Stage 1 will build a temporary road width on the west side of the highway. This additional width is necessary to maintain two lane widths for traffic during Stage 2. Stage 2 will be the construction of the east side of the bridge. Traffic will travel both ways on the west side of the road. Shoring will be constructed close to the centerline of the highway in order to provide support for the traffic lanes on the west side of the road. The east side of the road above the culverts will be excavated deep enough to construct the east half of the bridge. Stage 3 will put traffic on the new bridge onto the east side of the highway. The west side of the highway will then be excavated for the construction of the western half of the bridge.

Construction Staging Area

The staging will occur in a pasture on the southeast corner of the project site, approximately 50 feet from Bethel Creek. A wetland in the pasture to the south of the staging area, and an existing second-growth forest have ruled out staging farther from the stream in the project area. The staging area will be constructed of gravel on geotextile fabric, with containment measures adequate to prevent fuel and other toxic substance spills from reaching the stream. Construction will take place from late spring through the fall, making flooding of the access road and staging area unlikely. If flooding of the work area is expected, the staging and access areas will be evacuated.

In-Water Work Isolation

Work area isolation will be accomplished by putting the stream into a diversion pipe 750 mm in diameter and 70 m in length through the work area. Fish in the in-water work isolation area will be removed prior to the installation of the stream diversion and the work area isolation. The stream within the affected area will be blocked off using block nets and ODFW and/or ODOT biologists will then remove fish in that area by electrofishing, according to the NOAA Fisheries guidelines. The fish will be placed upstream in suitable pool habitat. Once the area has been cleared of fish to the extent possible, the stream diversion and in-water isolation will be installed. As the work area begins to dry out, isolated pools will be checked for stranded fish.

The existing side-by-side culverts will facilitate the stream diversion through the work area and work area isolation. The first step will be laying the pipe through the work area in one of the culverts. Two sandbag dams will then be built at the upstream end of the diversion pipe, upstream of the work area. Pumps will be installed between the dams as necessary to move water that flows past the first dam into the diversion pipe. This will ensure that the stream channel through the work area is dry. Cobbles will be placed at the diversion outfall to prevent scour. Sedimats will be placed below the pipe outfall to control incidental suspended sediment.

Once the diversion is in place through one of the culvert pipes, the other culvert will be removed and the stream channel will be reconstructed in that area. After the work on the reconstructed side of the new channel is finished the flow will be cut off through the diversion temporarily and the pipe will be located on the reconstructed side of the channel. The remaining culvert will then

be removed and the channel will be constructed in that area. The work area isolation will be installed and removed, and all culvert removal and channel reconstruction work will be completed, within the ODFW in water work window (July 15 – September 30).

The Bridge

These culverts will be replaced with a single-span bridge 25 m long (center to center of the end bents) and 16.8 m wide. The bridge will be constructed in stages so that no detour structure will be necessary, minimizing project impacts to the stream. The bridge will have three travel lanes 3.6 m wide (2 north, 1 south) with 3 m wide shoulders. There will be seven precast bulb T beams supporting a 225 mm thick poured in place deck. The beams will be supported on steel pile endbents. The side slopes below the bridge will be at a 1: 2 slope (vertical:horizontal) resulting in a 5 m wide channel bottom, accommodating the width of the active channel.

The bridge rail will be a solid concrete F rail that will direct stormwater runoff to each side of the south end of the bridge. Once storm water leaves the bridge, it will infiltrate through vegetation on the fill slopes of the highway. Currently, stormwater runs off of each side of the roadway above the culverts and has a more direct path into the stream.

In order to protect the northwest corner of the bridge with guardrails meeting current FHWA safety standards, a landowner access will have to be moved north, away from the stream and new bridge. The new access will be approximately 30 m north or upslope from the existing access. Several trees in ODOT right-of-way will have to be removed to construct the new access. These trees currently make a negligible contribution to the stream ecosystem.

Channel Reconstruction

The reconstructed channel will be built within the footprint of the existing culverts, resulting in a 2.2% stream gradient under the bridge. The average stream gradient in this reach is less than 1.0%.

In order to excavate the new channel, roughly 1,257 m² of vegetation will have to be removed. Approximately 40 alder, 10 fir, five willow, and seven spruce ranging in size from 75 to 400 mm will be cleared in this area. The disturbed areas will be replanted with alder, spruce, fir, cedar and willow.

The grade of the new channel will be controlled with a two foot blankets of class 100 riprap (100 kg rock or less) buried 600 mm below the channel bottom. This blanket of riprap is necessary to prevent the channel from down-cutting and creating a passage barrier or releasing a head-cut upstream.

The side slopes of the channel under the bridge will be protected by class 100 riprap up to an elevation of 20.0 m, just above the two-year flood elevation under the bridge at 19.05 m. This riprap will prevent the stream from cutting into the bank under the bridge and causing a reduced safety factor for the bridge's stability.

1.3 Biological Information

Within the Bethel Creek watershed, OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), and protective regulations were issued under section 4(d) of the Endangered Species Act (ESA) on July 10, 2000 (65 FR 42422).

Coho salmon are known to spawn and rear in the Bethel Creek watershed, primarily above the Highway 101 crossing. Adult coho salmon enter Bethel Creek in early November and spawn through January. Juvenile coho salmon may occur in the project area during the early part of the in-water work period, during the end of the spring out-migration period. Coho salmon and other juvenile salmonids were observed by ODOT in a pool just upstream of the culverts on two site visits in June 2001.

The stream below Highway 101 is considered too warm during the summer for good salmonid rearing habitat. Bethel Creek is on the Oregon Department of Environmental Quality (DEQ) 303d list for exceeding temperature standards (64° f) for rearing salmonids. Finally, there is little cover and habitat complexity in this area, providing low quality resting and refuge habitat.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the definition of the biological requirements and current status of the listed species, and the evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis, if applicable, considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of OC coho salmon.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed coho salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environmental.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and holding in the action area. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed. The Bethel Creek watershed serves as freshwater riverine spawning habitat and year-round juvenile rearing habitat. However, high summer water temperatures in the lower reaches limit the amount of year-round rearing. The existing culverts at the proposed project site restrict juvenile salmonids from accessing the upper reaches of Bethel Creek where more suitable habitat exists.

1.4.2 Environmental Baseline

The current range-wide status of the identified evolutionarily significant unit (ESU) may be found in Nickelson *et al.* (1992) and Weitkamp *et al.* (1995). The identified action will occur within the range of OC coho salmon. The action area is defined as the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activity includes the immediate watershed where the passage improvement project will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as

the channel and adjacent riparian area from 225 m upstream from the project site and downstream approximately 3.1 km to the confluence with the New River. There will be temporary indirect impacts (temperature modification, and disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge and hydraulics) to Bethel Creek caused by the in-water work and general riparian and bank disturbance within the project area.

The dominant land use in the Bethel Creek watershed is private agriculture, although other uses, such as private timberland production, also occur. Bethel Creek is on the ODEQ 303d list for exceeding temperature standards (64°F) for rearing salmonids. In addition, there is a large fluctuation between day and nighttime temperatures. This can place additional stress on juvenile salmonids rearing in this area.

In the reach below the Highway 101 crossing there is little cover and habitat complexity, providing low quality resting and refuge habitat. However, the reaches upstream of Highway 101 provide more optimum habitat, the water temperatures are cooler and the habitat is more complex.

Based on the best available information regarding the current status of OC coho salmon range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area; NOAA Fisheries concludes that the biological requirements of OC coho salmon within the action area are not currently being met. Bethel Creek has degraded habitat resulting from agricultural practices, forestry practices, and road building, indicating many aquatic habitat indicators are at risk or not properly functioning.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of actions are expressed in terms of the expected effect – restore, maintain, or degrade – on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to OC coho salmon:

1. Removal of the double-barreled corrugated metal pipe will require the work area to be isolated from the active flowing channel. Fish will be salvaged from within the isolated work area, if listed salmonids are found to be present during construction. The likelihood of adversely affecting fish will be decreased by carrying out this work during the ODFW preferred in-water work period of July 15 to September 30. During isolation of the work area, turbidity and sedimentation may adversely effect fish. Turbidity, at

moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence et al. 1996). Behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment. Localized increases of erosion/turbidity during work activities could displace fish in the action area and disrupt normal behavior. These effects are expected to be temporary or nonexistent and localized, depending on flow patterns and occupancy during construction and may last until work is complete and any disturbed areas are revegetated.

2. About 1,257 m² of vegetation will have to be cleared, including 40 alder, 10 fir, five willow, and seven spruce trees ranging from 3 to 15 inches diameter at breast height (dbh). The clearing area will be replanted with alder, spruce, fir, cedar and willow. The clearing will result in short-term, localized impacts to water temperature and contribution of organic debris. Over the long term the plantings may improve riparian conditions at the site by contributing to shade, organic debris, bank stability, and eventually large woody debris recruitment.
3. The project has the potential to result in a long-term benefit to salmonids. Replacing the existing structure with a single-span bridge will provide both adult and juvenile upstream migration. This will open approximately three miles of habitat within Bethel Creek to juvenile salmonids. This habitat is more complex and offers cooler water temperatures.

The negative effects of these activities on OC coho salmon and riparian and aquatic habitats will be avoided or minimized by carrying out construction methods and approaches included in the project design and described in the BA.

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation." The action area has been defined as the Bethel Creek channel and adjacent riparian area from 225 m upstream from the project site, downstream to the confluence with the New River (approximately 3.1 km).

The primary actions that occur within the Bethel Creek watershed are grazing and timber harvest. Non-federal activities within the action area are expected to increase due to the probable increase in human population over time. Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, but at increasingly higher levels as population density increases. NOAA Fisheries assumes that future FHWA transportation projects in the Bethel Creek watershed will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6 Conclusion

After reviewing the current status of OC coho salmon, the environmental baseline for the action area, the effects of the proposed Bethel Creek Bridge (Fish 4) Fish Passage Improvement Project, and the cumulative effects, it is the NOAA Fisheries Opinion that this project, as proposed, is not likely to jeopardize the continued existence of the OC coho salmon. NOAA Fisheries applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment/turbidity impacts, temperature modification, and habitat loss. These effects will be mitigated over the long-term through the proposed mitigation planting and improved fish passage. Direct mortality of juveniles may occur during the in-water work activities and attempts to remove fish from the work area. Thus, the proposed action is not expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or retard the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

1.7 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount and Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of OC coho salmon because of detrimental effects from sediment pulses (non-lethal) and the possibility of juvenile presence in the vicinity of the project site during in-water work (lethal). NOAA Fisheries expects the possibility exists for incidental take of up to 20 coho salmon during work area isolation and fish handling. Take resulting from the effects of other project actions covered by this Opinion is largely unquantifiable in the short term and not expected to be measurable in the long term. The extent of take is limited to the project action area.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require ODOT to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The Bethel Creek Bridge (Fish 4) Passage Improvement Project includes a set of conservation measures designed to minimize take of listed species. These are described on pages 9 to 14 of the BA, dated November 23, 2001. Specific measures for in-water and bank work, clearing and grubbing, bridge removal, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are included.

NOAA Fisheries believes that the following reasonable and prudent measures, along with conservation measures described in the BA are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

The FHWA shall:

1. Minimize the likelihood of incidental take by timing the completion of all in-water work as necessary to avoid harming vulnerable salmon life stages, including spawning, migration and rearing.

2. Minimize the amount and extent of incidental take from construction activities in or near the water by implementing effective erosion and pollution control measures, minimizing the movement of soils and sediment both into and within the stream, and stabilizing bare soil in the short and long term.
3. Minimize the likelihood of incidental take from in-water work by ensuring that the in-water work areas are isolated from flowing water.
4. Carry out a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objective of minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (in-water timing) above, the FHWA shall ensure that:
 - a. All work within the ordinary high water mark will be completed within the ODFW approved in-water work period (July 15 to September 30).¹
 - b. Extensions to the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water (19.05 m) mark must be approved by biologists from NOAA Fisheries.
2. To implement Reasonable and Prudent Measure #2 (pollution and erosion control) the FHWA shall ensure:
 - a. Project design. Minimize alteration or disturbance of the stream banks and existing riparian vegetation.
 - b. Pollution and erosion control plan. Develop a Pollution and Erosion Control Plan (PECP) for the project to prevent point-source pollution related to construction operations containing all of the pertinent elements listed below and meeting requirements of all applicable laws and regulations.
 - i. Describe methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.
 - ii. Identify hazardous products or materials that will be used, including procedures for inventory, storage, handling, and monitoring.
 - iii. Develop a spill containment and control plan with these components: Notification procedures; specific clean up and disposal instructions for different products; quick response containment and clean up measures;

¹Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12pp (June 2000)(identifying work periods with the least impact on fish)(http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

- proposed methods for disposal of spilled materials; and employee training for spill containment.
- iv. Describe measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a way that has a minimum impact on the streambed and water quality.
- c. Pre-construction activities. Before significant alteration of the action area, complete the following actions:
- i. Flag boundaries of the clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
 - ii. Stockpile a supply of erosion control materials (*e.g.*, silt fence and straw bales) on-site to respond to sediment emergencies. Use sterile straw or hay bales when available to prevent introduction of weeds.
 - iii. Install all temporary erosion controls (*e.g.*, straw bales, silt fences) downslope of project activities within the riparian area. Keep them in-place and maintained throughout the contract period, and until permanent erosion control measures are effective.
- d. Earthwork. Complete earthwork, including drilling, blasting, excavation, dredging, filling and compacting, in the following manner:
- i. Obtain boulders, rock, woody materials and other natural construction materials used for the project from outside the riparian area.
 - ii. Place material removed during excavation in locations where it cannot enter streams or other water bodies.
 - iii. Stabilize all exposed or disturbed areas to prevent erosion.
 - (1) Stabilize areas of bare soil within 45 m of waterways, wetlands or other sensitive areas quickly as reasonable after exposure, but within seven days. Use native seeding,² mulching, and placement of erosion control blankets and mats, if applicable.
 - (2) Stabilize all other areas quickly as reasonable, but within 14 days of exposure.
 - (3) Do not consider seeding outside the growing season as adequate for permanent stabilization.
- e. Heavy Equipment. Fuel, maintain and store heavy equipment as follows:
- i. Vehicle staging, maintenance, refueling, and fuel storage may occur within 45 m horizontal distance from the stream in the field on the southeast corner of the bridge
 - ii. The staging area will provide adequate containment to prevent pollutants from entering the waterway..

² By Executive Order 13112 (February 3, 1999), federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

- iii. Inspect all vehicles operated or staged within 45 m of any stream or water body daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected before the vehicle resumes operation.
 - iv. When not in use, store vehicles in the vehicle staging area.
 - f. Site restoration. Complete site restoration and clean up, including protection of bare earth by seeding, planting, mulching and fertilizing, in the following manner:
 - i. Plant disturbed areas with native vegetation specific to the project vicinity or the region of the state where the project is found, using a diverse assemblage of woody and herbaceous species.
 - ii. Do not apply herbicide as part of this permitted action.
 - iii. Do not use surface application of fertilizer within 15 m of any stream channel.
 - iv. Achieve an 80 percent survival success of planting after three years.
- 3. To implement Reasonable and Prudent Measure #3 (isolation of in-water work area) the FHWA shall ensure:
 - a. The work area will be isolated from the wetted channel with a coffer dam (made out of sandbags, sheet pilings, inflatable bags, *etc.*), or similar structure, to minimize the potential for sediment entrainment.
 - b. If the fish salvaging aspect of this project requires use of seine equipment to capture fish, complete the salvage operation as follows:
 - i. Before and, intermittently during pumping, attempt to seine and release fish from the work isolation area as is prudent to minimize risk of injury.
 - ii. Have an experienced fishery biologist carry out or supervise all seining efforts and ensure that staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all salmon.
 - iii. Handle salmon with extreme care and keep them in water to the maximum extent possible during seining and transfer procedures. Transfer salmon using a sanctuary net that holds water during transfer, whenever appropriate, to prevent the added stress of an out-of-water transfer.
 - iv. Release seined fish as near as possible to capture sites.
 - v. Ensure that any other federal, state, and local permits and authorizations necessary for the conduct of the seining activities are obtained before project seining activity.
 - vi. The FHWA must allow NOAA Fisheries or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the seining records and facilities.
 - vii. Describe any seine and release effort in a post project report, include: The name and address of the supervisory fish biologist; methods used to isolate the work area and minimize disturbances to salmon; stream conditions before and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released; and any incidence of observed injury or mortality.

- c. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, observe NOAA Fisheries (1998) guidelines as follows:
- i. Do not electrofish near adult salmon in spawning condition or near redds containing eggs.
 - ii. Keep equipment in good working condition. Complete manufacturers' preseason checks, follow all provisions, and record major maintenance work in a log.
 - iii. Train the crew by a crew leader with at least 100 hours of electrofishing experience in the field using similar equipment. Document the crew leader's experience in a logbook. Complete training in waters that do not contain salmon before an inexperienced crew begins any electrofishing.
 - iv. Measure conductivity and set voltage as follows:

<u>Conductivity (umhos/cm)</u>	<u>Voltage</u>
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

- v. Use direct current (DC) at all times.
- vi. Begin each session with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.
- vii. The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.
- viii. Work the monitoring area systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.
- ix. Have crew members carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. End sampling if injuries occur or abnormally long recovery times persist.
- x. Whenever possible, place a block net below the area being sampled to capture stunned fish that may drift downstream.
- xi. Record the electrofishing settings in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.

4. To implement Reasonable and Prudent Measure #4 (monitoring and reporting), the FHWA shall:
 - a. Submit a report to NOAA Fisheries within 120 days of completing the project. Describe the FHWA's success meeting conservation recommendations above. Include the following information:
 - i. Project identification.
 - (1) Project name;
 - (2) starting and ending dates of work completed for this project;
 - (3) the FHWA contact person; and,
 - (4) location of the compensatory mitigation site.
 - ii. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release activity including:
 - (1) The name and address of the supervisory fish biologist;
 - (2) methods used to isolate the work area and minimize disturbances to ESA-listed species;
 - (3) stream conditions prior to and following placement and removal of barriers;
 - (4) the means of fish removal;
 - (5) the number of fish removed by species;
 - (6) the location and condition of all fish released; and
 - (7) any incidence of observed injury or mortality.
 - iii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
 - iv. Site restoration. Documentation of the following conditions:
 - (1) Finished grade slopes and elevations.
 - (2) Log and rock structure elevations, orientation, and anchoring, if any.
 - (3) Planting composition and density.
 - (4) A plan to inspect and, if necessary, replace failed plantings and structures for a period of three years, including the compensatory mitigation site.
 - v. Fish Passage. Monitor the structure for five years to determine both juvenile and adult salmonid passage during low and high flow regimes.
 - vi. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.
 - vii. Photographic documentation of environmental conditions at the project site and compensatory mitigation site before, during and after project completion.
 - (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.

- (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
 - (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.
- b. Submit monitoring reports to:
 - NOAA Fisheries
 - Oregon Habitat Branch, Habitat Conservation Division
 - Attn: 2002/00176
 - 525 NE Oregon Street, Suite 500
 - Portland, Oregon 97232-2778

3. MAGNUSON - STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in federal fishery management plans. In addition, the MSA requires federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include aquatic areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities. "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem, and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed above in section 1.2, Proposed Action. The action area is defined as the channel and adjacent riparian area from about 225 m upstream from the project site, downstream almost a 3.1 km to the confluence with the New River. This area has been designated as EFH for various life stages of OC coho salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5, Analysis of Effects, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. These impacts include: Increases in turbidity, disturbance of the beds and banks of the river, removal of riparian vegetation and the potential for pollutants to enter the water.

3.6 Conclusion

NOAA Fisheries believes that the proposed action may adversely affect the EFH for OC coho salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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NMFS. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon, 32 p.

PFMC (Pacific Fishery Management Council). 1999. *Amendment 14 to the Pacific Coast Salmon Plan*. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.

Spence, B.C., G.A. Lomnický, R.M. Hughes, and R.P. Novitzki. 1996. An Ecosystem Approach to Salmonid Conservation. TR-4501-96-6057.

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